

The role of landscape changes in shaping Alpine species distribution

Ecosystems are deeply affected by the human activity and land use and land cover change is recognized as one of the most important causes of the alarming loss of biodiversity.

In this scenario is fundamental to identify the most endangered areas where developing conservation purposes. The Alpine regions are of particular interest because they are characterized by rare and fragile ecosystems with a high level of endemism well adapted to harsh condition and particular sensitive to changes.

Taking in account that the landscape is the result of natural and human processes is fundamental to reconstruct what happened in the past, describe the present through monitoring activities and try to predict the future events. Therefore in biodiversity conservation the remote sensing images are useful to define the landscape structure and to evaluate its changes.

Considering the importance of the scale-dependency of ecological processes, we propose a multi-temporal and scale approach to describe the landscape structures and their role in shaping Alpine species distribution.

The study area is the Gran Paradiso National Park, and we will focus both on test areas and both at the landscape scale.

During the first step we will set a low-cost procedure of UAV (Unmanned Aerial Vehicle) survey adapted to Alpine environment in order to obtain high temporal and spatial resolution images in test areas.

In the second step we will focus on the interpretation of the aerial images already available to reconstruct the land cover changes during the last decades and we compare the results with the UAV images.

In the last step the analysis will be extended to entire Park landscape using satellite data.

This multiscale analysis of landscape changes allow us to study how the environmental patterns affect the animal distribution using both a multi-taxa approach and considering a single target species.

These results are essential for an adaptive management, balanced in space and time.